

Mr. Heath Thompson
Page Two
November 4, 2014

The City of Kransburg has inquired of Sioux Rural Water System regarding the possibility of individual meter service to the City. The City is currently served by a bulk meter from Sioux Rural Water System and the City owns and maintains their own distribution system. It is recommended that the entire distribution system within the City be replaced and that it be owned and operated by Sioux Rural Water System with individual meter service to each of the customers within the City limits. The new distribution piping would include a mile of 6 inch pipe to the west of town to provide better service to the City and it also includes a primary 6 inch water main through the middle of town with 3 inch branch lines. Individual meter pits would be provided at each customer location.

Within the past year and a half, it has become clearly apparent that the Sioux SCADA system needs to be replaced. The existing system consists of original control boards and other equipment which can no longer be repaired. OEM and replacement parts are no longer available. The number of control suppliers able to service the system has become very limited. The SCADA system replacement project consists of the 13 stations within the Sioux system. New control boards and human machine interfaces will be provided at each station along with the required radio and telemetry equipment.

Drawings Sheets 1 and 2 along with Table 1 show the distribution improvements and associated cost estimate. The current northeast part of the system operates with a small booster at Tower G and Booster H north of Tower G. As part of the improvements it is recommended that a new booster station be constructed at the Tower G location and that Booster H be removed from service.

Table 2 provides a cost estimate for the well field improvements.

Drawing Sheet 3 and Table 3 indicate the distribution improvements for the individual service to the City of Kransburg and the associated cost.

Table 4 provides a cost estimate for the SCADA system replacement.

Table 5 provides an overall project cost summary.

Sincerely,

DGR Engineering

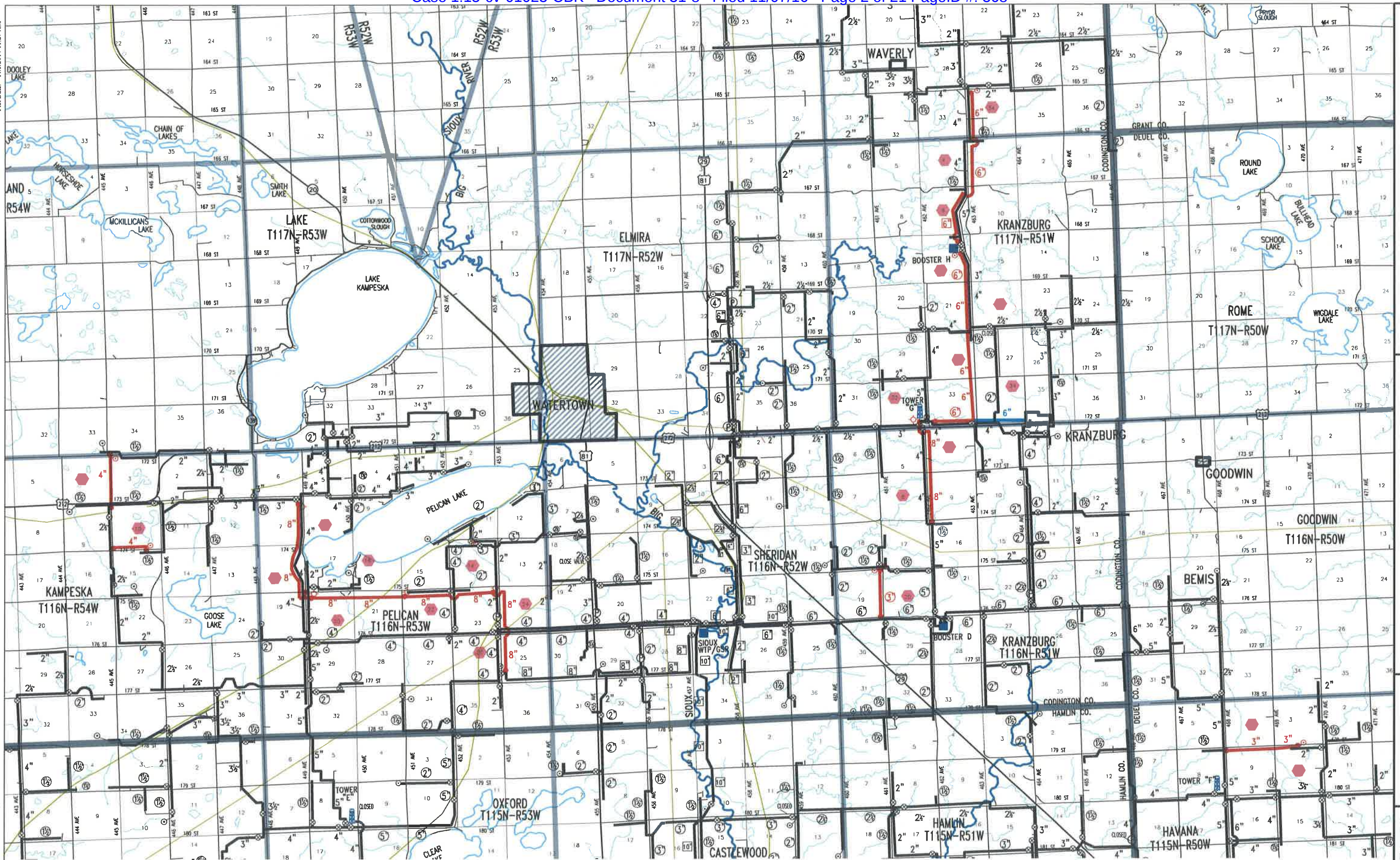


Darin Schriever, P.E.

DLS:aed

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SCALE FEET

LEGEND

- PROPOSED PIPE - RURAL
- PROPOSED PIPE - KRANZBURG

SIoux RURAL WATER SYSTEM
WATERTOWN, SD

2015 WATER SYSTEM IMPROVEMENTS

REVISIONS

Project Manager: DLS
Designer: DFC
Project Number: 802807
Phone: (712) 472-2531

DCR
ENGINEERING

Sheet
1

SIOUX RURAL WATER SYSTEM
WATERTOWN, SD

2013 WATER SYSTEM IMPROVEMENTS

VISIONS

Designer: DFC
Project Number: 802807
Phone: (712) 472-2531



DGR
ENGINEERING

Sheet
2

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Sheet
3

Project Manager: DLS
Designer: MG
Project Number: 802807
Phone: (712) 472-2531

LOCATION PLAN

2015 WATER SYSTEM IMPROVEMENTS
KRANZBURG DISTRIBUTION IMPROVEMENTS
KRANZBURG, SOUTH DAKOTA

Table 1
Preliminary Cost Estimate
Rural Distribution Improvements
Sioux RWS

Item No.	Description	TOTAL UNITS	UNIT PRICE	TOTAL VALUE
1	8" Class 200 Restrained Joint Pipe	600	\$ 22.00	\$ 13,200
2	8" Class 160 SDR 26 PVC Pipe	52,130	\$ 10.05	\$ 523,907
3	6" Class 250 SDR 17 PVC Pipe	7,880	\$ 9.00	\$ 70,920
4	6" Class 250 Restrained Joint Pipe	120	\$ 18.00	\$ 2,160
5	6" Class 200 SDR 21 PVC Pipe	13,220	\$ 8.25	\$ 109,065
6	6" Class 160 SDR 26 PVC Pipe	27,250	\$ 7.45	\$ 203,013
7	4" Class 160 SDR 26 PVC Pipe	10,315	\$ 5.10	\$ 52,607
8	3" Class 200 SDR 21 PVC Pipe	30,025	\$ 4.25	\$ 127,606
9	3" Class 160 SDR 26 PVC Pipe	24,000	\$ 4.05	\$ 97,200
10	8" Valve and Box	7	\$ 1,850.00	\$ 12,950
11	6" Valve and Box	8	\$ 1,500.00	\$ 12,000
12	4" Valve and Box	5	\$ 950.00	\$ 4,750
13	3" Valve and Box	14	\$ 850.00	\$ 11,900
14	Cut In 1.5" Valve and Box	1	\$ 900.00	\$ 900
15	Type 1 Railroad Crossing, 8"	1	\$ 18,000.00	\$ 18,000
16	Type 1 Road Crossing, 8"	3	\$ 12,000.00	\$ 36,000
17	Type 1 Road Crossing, 6"	3	\$ 10,000.00	\$ 30,000
18	Type 1 Road Crossing, 4"	1	\$ 8,000.00	\$ 8,000
19	Type 1 Road Crossing, 3"	3	\$ 7,000.00	\$ 21,000
20	Type 2 Road Crossing, 8"	6	\$ 5,500.00	\$ 33,000
21	Type 2 Road Crossing, 6"	9	\$ 4,500.00	\$ 40,500
22	Type 2 Road Crossing, 4"	3	\$ 4,000.00	\$ 12,000
23	Type 2 Road Crossing, 3"	9	\$ 3,500.00	\$ 31,500
24	Type 2 Drive Crossing, 8"	8	\$ 2,600.00	\$ 20,800
25	Type 2 Drive Crossing, 6"	6	\$ 2,000.00	\$ 12,000
26	Type 2 Drive Crossing, 4"	-	\$ 1,800.00	\$ -
27	Type 2 Drive Crossing, 3"	5	\$ 1,700.00	\$ 8,500
28	Type 2 Stream Crossing, 8"	1	\$ 12,000.00	\$ 12,000
29	Type 2 Stream Crossing, 6"	1	\$ 10,000.00	\$ 10,000
30	Type 2 Stream Crossing, 3"	3	\$ 7,000.00	\$ 21,000
31	Pressure Reducing Valve	1	\$ 12,000.00	\$ 12,000
32	Cleanouts	12	\$ 1,650.00	\$ 19,800
33	Flushing Hydrant	5	\$ 4,500.00	\$ 22,500
34	Ties to Existing	31	\$ 500.00	\$ 15,500
35	Ditchwork 10% of Installed	16,550	\$ 1.50	\$ 24,825
36	New Booster G	1	\$ 225,000.00	\$ 225,000
37	Misc. and Contingency, 10%			\$ 187,600
Total Construction:				\$ 2,063,700
Other Project Cost at 20%:				\$ 412,700
Total Project Cost:				\$ 2,476,400

Table 2
Preliminary Cost Estimate
Well Field Improvements
Sioux RWS

Item No.	Description	TOTAL UNITS	UNIT PRICE	TOTAL VALUE
1	Well Construction	2	\$ 50,000.00	\$ 100,000
2	Pumps and Controls	2	\$ 45,000.00	\$ 90,000
3	Connecting Pipelines	5,300	\$ 15.00	\$ 79,500
4	Misc. Items			\$ 50,000
Total Construction:				\$ 319,500
Other Project Cost at 25%:				\$ 79,900
Total Project Cost:				\$ 399,400

Table 3
Preliminary Cost Estimate
Kranzburg Distribution Improvements
Sioux RWS

Item No.	Description	TOTAL UNITS	UNIT PRICE	TOTAL VALUE
1	6" Class 160 SDR 26 PVC Pipe - Rural, trenched	5,300	\$ 7.45	\$ 39,485
2	6" Class 200 SDR 21 PVC Pipe - City, trenched	2,000	\$ 18.00	\$ 36,000
3	6" Class 200 SDR 21 PVC Pipe - City, bored	1,500	\$ 38.00	\$ 57,000
4	3" Class 200 SDR 21 PVC Pipe - City, trenched	6,150	\$ 14.00	\$ 86,100
5	1" HDPE Service Line	2,640	\$ 15.00	\$ 39,600
6	6" Valve and Box	4	\$ 1,650.00	\$ 6,600
7	3" Valve and Box	9	\$ 900.00	\$ 8,100
8	1" Service Line Valve and Box	66	\$ 525.00	\$ 34,650
9	Meter Pit Service (incl. saddle, corp, meter, etc.)	66	\$ 2,200.00	\$ 145,200
10	Type 1 Road Crossing, 6"	3	\$ 10,000.00	\$ 30,000
11	Type 2 Road Crossing, 3"	1	\$ 3,500.00	\$ 3,500
12	Cleanouts	6	\$ 2,200.00	\$ 13,200
13	Ties to Existing	2	\$ 2,000.00	\$ 4,000
14	Asphalt Surfacing Repair, SY	150	\$ 50.00	\$ 7,500
15	Gravel Surfacing Repair, ton	1,500	\$ 20.00	\$ 30,000
16	Concrete Repair, SY	300	\$ 36.00	\$ 10,800
17	Culvert Repair, ea	20	\$ 2,200.00	\$ 44,000
18	Seeding, SY	15,000	\$ 1.50	\$ 22,500
19	Mobilization	1	\$ 50,000.00	\$ 50,000
20	Misc. and Contingency, 10%			\$ 66,800
Total Construction:				\$ 735,000
Other Project Cost at 25%:				\$ 183,800
Total Project Cost:				\$ 918,800

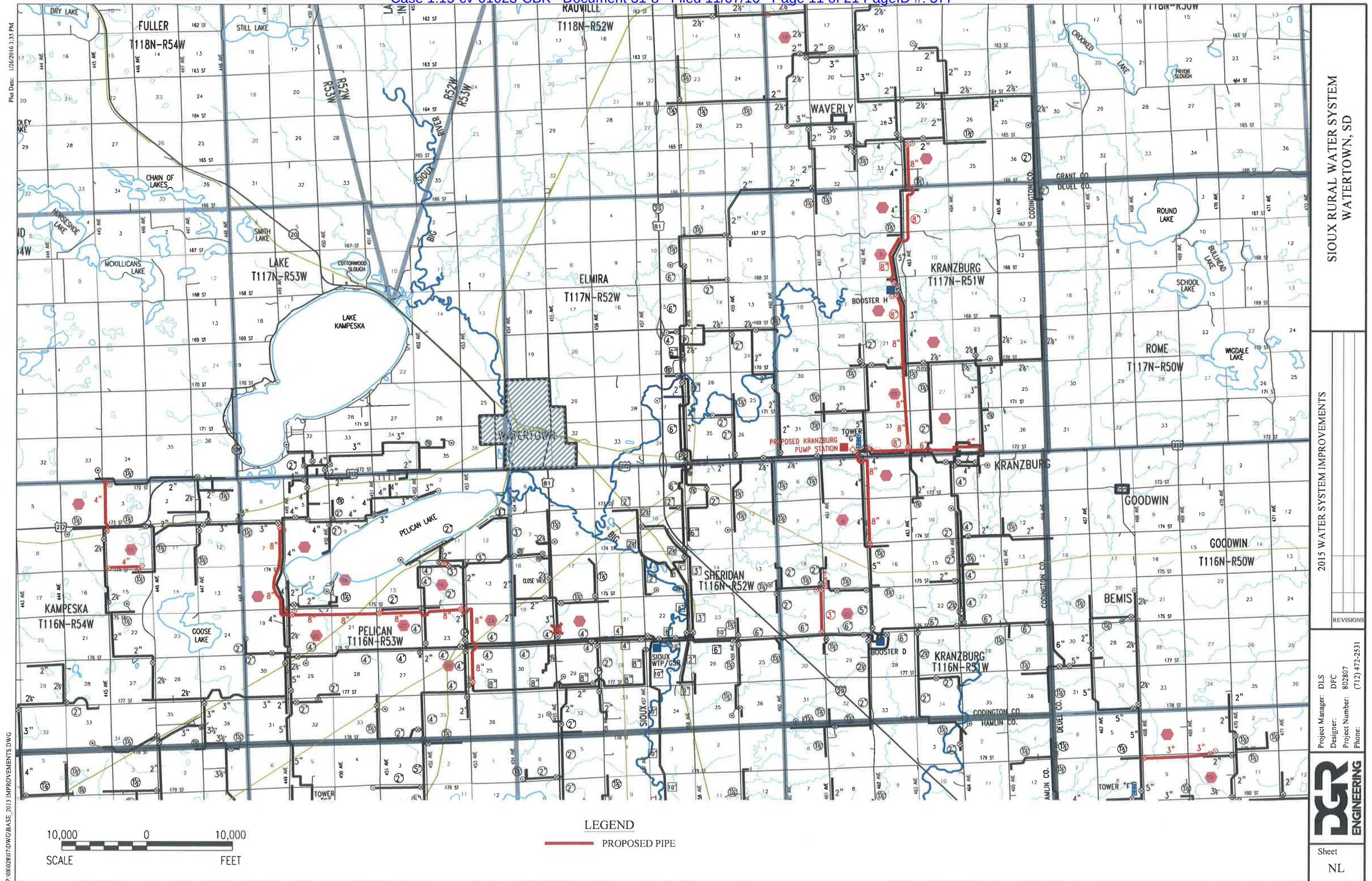
Table 4
Preliminary Cost Estimate
SCADA Improvements
Sioux RWS

Station	Description	Estimated Cost
1	Sioux WTP Office (Master) Wells Treatment Storage HSP East to Booster D HSP West to Tower E	\$ 150,000
2	Castlewood WTP Wells Treatment Storage HSP East to Krause HSP West to Kones, Hayti, Booster C	\$ 100,000
3	Tower A (Bryant)	\$ 20,000
4	Tower B (Hazel)	\$ 20,000
5	Tower E (Thomas)	\$ 20,000
6	Tower F (Bemis)	\$ 20,000
7	Tower G (Kranzburg) Tower Kranzburg Pumps	\$ 35,000
8	Hayti Storage HSP to City Tower	\$ 35,000
9	Kones GSR HSP to distribution	\$ 35,000
10	Krause GSR HSP to Tower F	\$ 35,000
11	Booster C (In-Line) Pump Northwest to Tower B Pump Southwest to Tower A	\$ 30,000
12	Booster D (In-Line) Pump North to Tower G Pump Southeast to Tower F (currently unused)	\$ 30,000
13	Booster H (Waverly) (In-Line) Pump North to Distribution	\$ 30,000
	Misc. and Contingency, 10%	\$ 56,000
Total Construction:		\$ 616,000
Other Project Cost at 25%:		\$ 154,000
Total Project Cost:		\$ 770,000

Table 5
Project Cost Summary
Overall Project
Sioux RWS

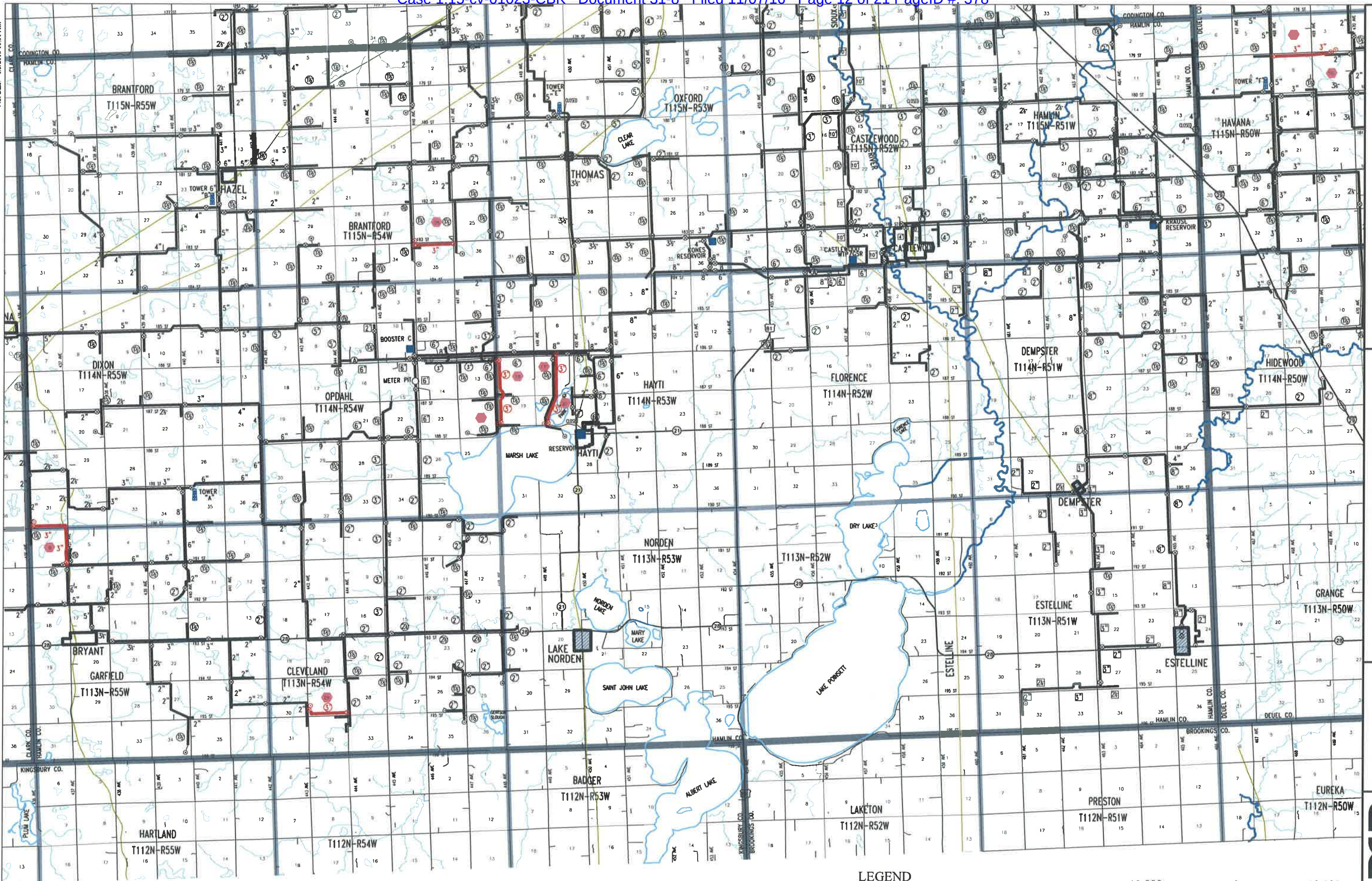
Project Component	Project Cost
Rural Distribution Improvements	\$ 2,476,400
Well Field Improvements	\$ 399,400
Kranzburg Distribution Improvements	\$ 918,800
SCADA Improvements	\$ 770,000
Total Estimated Project Cost: \$ 4,564,600	

APPENDIX D



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SIoux RURAL WATER SYSTEM
WATERTOWN, SD

2015 WATER SYSTEM IMPROVEMENTS

REVISIONS

Project Manager: DLS
Designer: DFC
Project Number: 802807
Phone: (712) 472-2531

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ENGINEERING

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APPENDIX E



Memo

TO: DLS
FROM: Paul Messner
DATE: 1/25/2016
RE: Sioux-Watertown Users

Model used: 15bndry0.p2k, 15bndry1.p2k, 15bndry0-exst.p2k

We analyzed Sioux's ability to provide service to the following users.

West Side of Watertown

- Pelican View Estates (154 connections)
- Kaks Addition (22 connections)
- B&G Welding
- C&K Truck & Trailer Repair
- K&P Pump Repair/ Controls

East Side of Watertown

- Big Shot Fireworks
- Cross Country Freight Solutions
- Dakota Automaition
- Fed Ex
- Hartley Trucking
- Kenworth
- Lews Fireworks
- McFleeg Feed
- New Building
- Rising Star Hydrolics
- Watertown Auction Inc.
- Wheel Co
- WW Tire

West Side of Watertown

We first analyzed the system's minimum pressures and maximum flows during instantaneous peak demand (IPD).

Sheet 1 shows the overall pressures and flows of the existing system on the west side of Watertown before the improvement project is completed.

Sheet 2 is the same as the previous sheet but shows a close up of the area.

Sheet 3 shows a close up of the WTP.

Sheet 4 shows the overall pressures and flows of the existing system on the west side of Watertown after the improvement project is completed.

Sheet 5 is the same as the previous sheet but shows a close up of the area.

Sheet 6 shows a close up of the WTP.

Sheet 7 shows the overall pressures and flows with the users added with minor improvements after the improvement project is completed.

Sheet 8 is the same as the previous sheet but shows a close up of the area.

Sheet 9 shows a close up of the WTP.

East Side of Watertown

Sheet 10 shows the overall pressures and flows of the existing system on the east side of Watertown before the improvement project is completed.

Sheet 11 is the same as the previous sheet but shows a close up of the area.

Sheet 12 shows the overall pressures and flows with the users added before the improvement project is completed.

Sheet 13 is the same as the previous sheet but shows a close up of the area.

Sheet 14 shows the overall pressures and flows of the existing system on the east side of Watertown after the improvement project is completed.

Sheet 15 is the same as the previous sheet but shows a close up of the area.

Sheet 16 shows the overall pressures and flows with the users added after the improvement project is completed.

Sheet 17 is the same as the previous sheet but shows a close up of the area.

We also reviewed the average pressures and flows during a 20 hour delivery. The following sheet better show the average predicted pressures in the distribution system.

West Side of Watertown

Sheet 18 shows the overall average pressures and flows of the existing system on the west side of Watertown before the improvement project is completed.

Sheet 19 is the same as the previous sheet but shows a close up of the area.

Sheet 20 shows a close up of the WTP.

Sheet 21 shows the overall average pressures and flows of the existing system on the west side of Watertown after the improvement project is completed.

Sheet 22 is the same as the previous sheet but shows a close up of the area.

Sheet 23 shows a close up of the WTP.

Sheet 24 shows the overall average pressures and flows with the users added with minor improvements after the improvement project is completed.

Sheet 25 is the same as the previous sheet but shows a close up of the area.

Sheet 26 shows a close up of the WTP.

East Side of Watertown

Sheet 27 shows the overall average pressures and flows of the existing system on the east side of Watertown before the improvement project is completed.

Sheet 28 is the same as the previous sheet but shows a close up of the area.

Sheet 29 shows the overall average pressures and flows with the users added before the improvement project is completed.

Sheet 30 is the same as the previous sheet but shows a close up of the area.

Sheet 31 shows the overall average pressures and flows of the existing system on the east side of Watertown after the improvement project is completed.

Sheet 32 is the same as the previous sheet but shows a close up of the area.

Sheet 33 shows the overall average pressures and flows with the users added after the improvement project is completed.

Sheet 34 is the same as the previous sheet but shows a close up of the area.

See the following sheets for details.

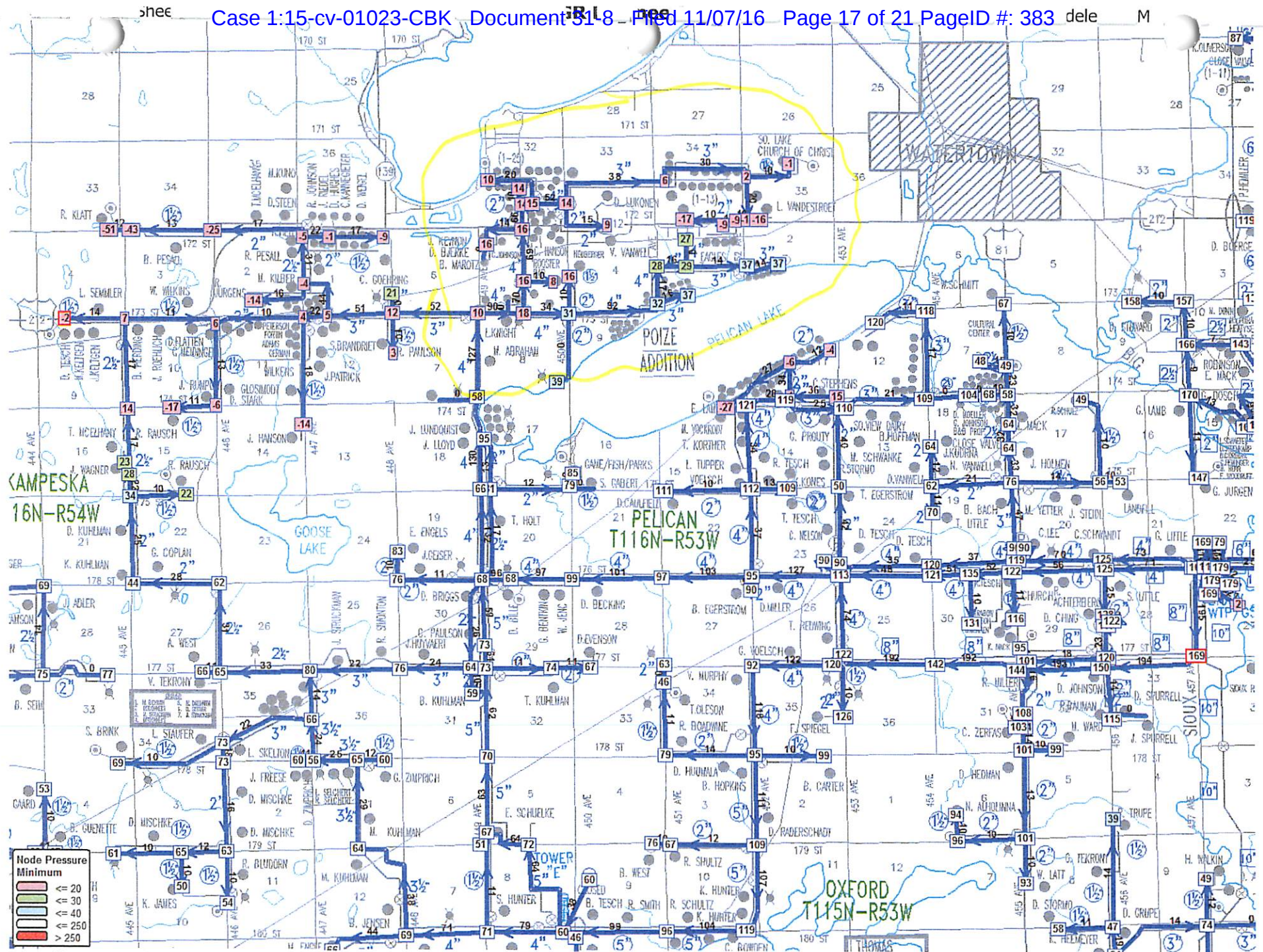
Please contact us with any questions.

Sincerely,

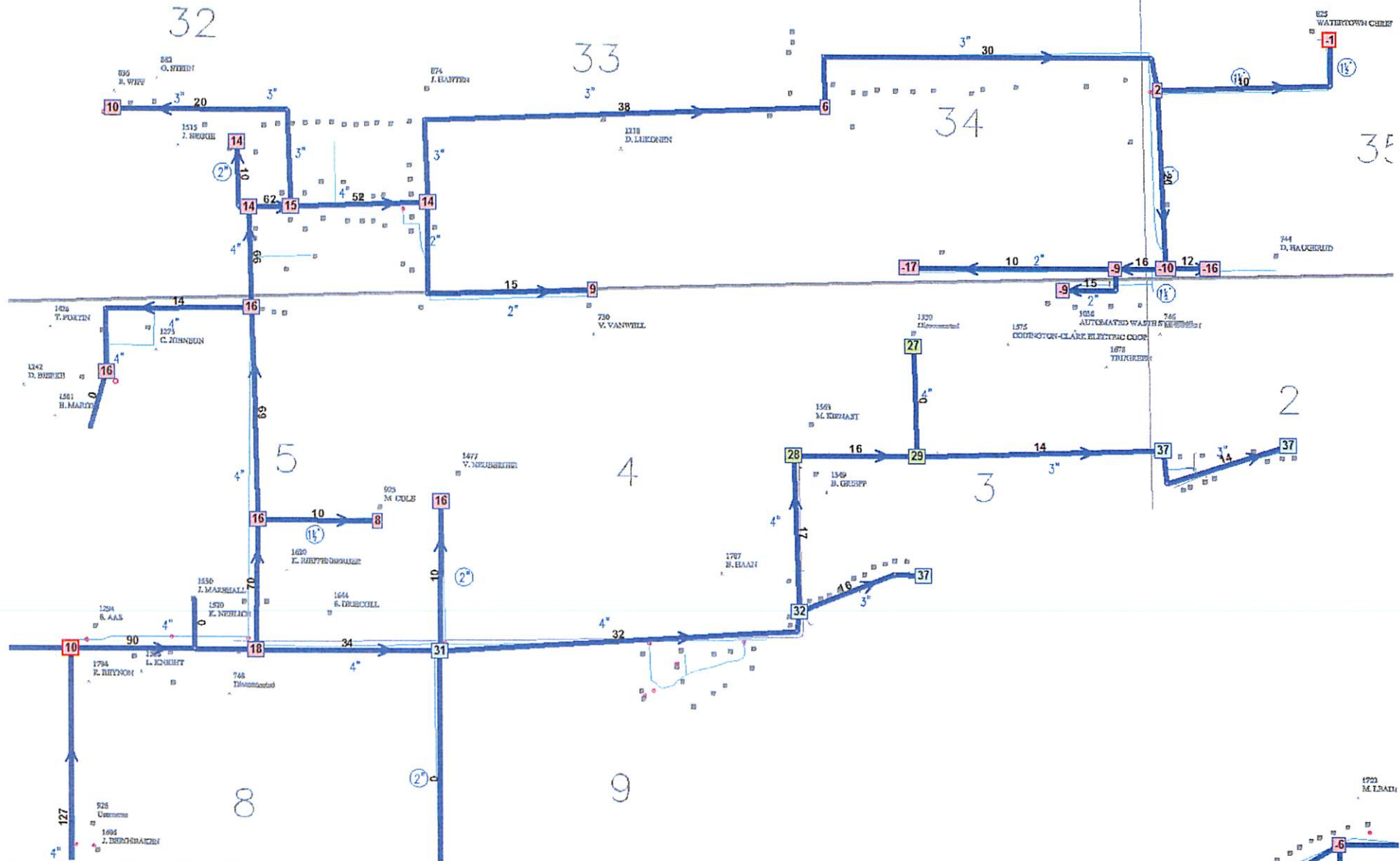
DGR ENGINEERING

Paul Messner

Paul Messner
Enclosure



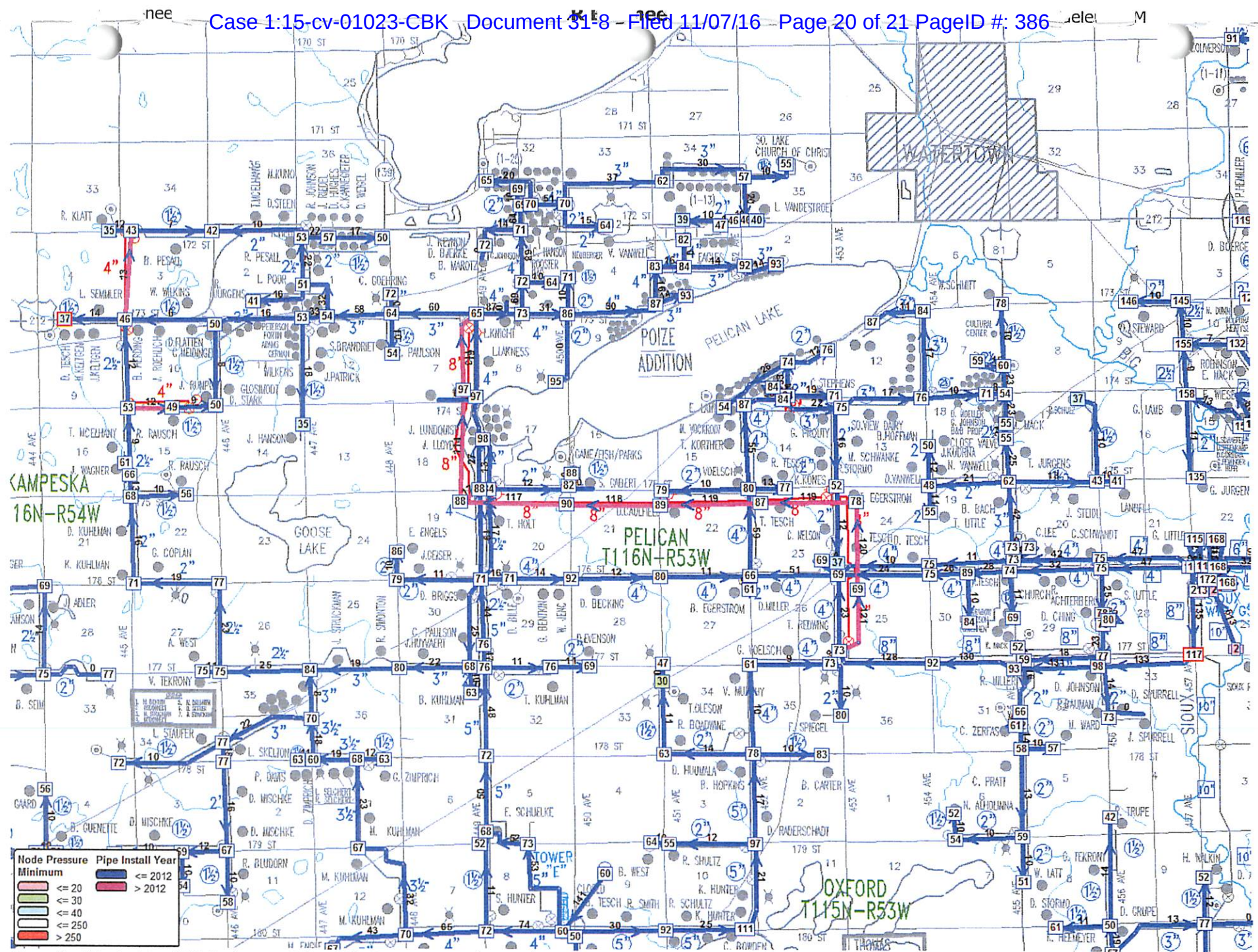
Overall – West side of Watertown – IPD – Min Pressures and Max Flows
Existing System before the Improvement Project is complete



Area View – West side of Watertown – IPD – Min Pressures and Max Flows
Existing System before the Improvement Project is complete

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